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**DETERMINING LIQUIDITY RISK, PROFITABILITY AND COST  
EFFICIENCY OF ISLAMIC BANKS IN SELECTED OIC COUNTRIES**

**ABDULFATTAH KOLAWOLE ABDULGANIYY**

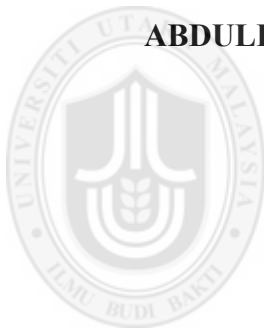


**DOCTOR OF PHILOSOPHY  
UNIVERSITI UTARA MALAYSIA  
JANUARY, 2018**

**DETERMINING LIQUIDITY RISK, PROFITABILITY AND COST  
EFFICIENCY OF ISLAMIC BANKS IN SELECTED OIC COUNTRIES**

**By**

**ABDULFATTAH KOLAWOLE ABDULGANIYY**



**UUM**  
**Universiti Utara Malaysia**

**Thesis Submitted to  
Islamic Business School,  
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Pusat Pengajian Perniagaan Islam  
ISLAMIC BUSINESS SCHOOL  
كلية إدارة الأعمال الإسلامية  
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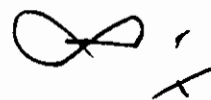
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## ABSTRACT

Liquidity risk in banks is a major issue following the 2008 Global Financial Crisis and 2014 oil price fall. The absence of Shariah-compliant liquidity instruments also accentuate liquidity problems in Islamic banks. The banks also face cost efficiency issues in addition to liquidity risk that affect their profitability. The main objective of this study is to examine liquidity risk determinants of Islamic banks in ten countries from Organization of Islamic Co-operation comprising Bahrain, Indonesia, Iran, Kuwait, Malaysia, Pakistan, Saudi Arabia, Sudan, Turkey and United Arab Emirate. Profit and Loss Sharing (PLS) contract and profitability were studied as mediators to explain the process through which relationship between liquidity risk and cost efficiency is affected. The study uses data of banks operating in dual and fully Islamic banking regulatory environments. Generalized Method of Moments was employed on 85 Islamic banks over 2005 to 2016 study period. The results show that cost efficiency and profitability ratios, Capital Adequacy Ratio and PLS are significantly related to liquidity risk. Similarly, Gross Domestic Product, Money Supply and inflation have significant influence on liquidity risk. It further highlights that profitability does mediate but PLS contract does not mediate the relationship between liquidity risk and cost efficiency. The implications of the results are that bank management, government and regulatory bodies of Islamic banks to manage the significant factors influencing liquidity risk effectively because they have direct impact on the banks' cost efficiency and profitability. This study contributes new findings in terms of reaffirming the reluctance of Islamic banks to use PLS contract since it increases liquidity risk. It is therefore recommended that the practitioners and policy makers to examine closely that PLS contract should be backed by long term capital to mitigate liquidity risk. This will ensure greater profitability of Islamic banks in the dual banking environment.

Keywords: Liquidity Risk, Profitability, Cost Efficiency, Islamic Bank.

## ABSTRAK

Risiko kecairan di bank merupakan isu utama berikutan Krisis Kewangan Global 2008 dan kejatuhan harga minyak pada tahun 2014. Ketiadaan instrumen kecairan yang patuh Syariah juga menimbulkan masalah kecairan di bank-bank Islam. Bank-bank ini juga menghadapi masalah kecekapan kos selain daripada risiko kecairan yang memberikan kesan kepada keuntungan. Objektif utama kajian ini adalah untuk menyelidik penentu risiko kecairan bagi bank-bank Islam di sepuluh buah negara dari Pertubuhan Kerjasama Islam yang terdiri daripada Bahrain, Indonesia, Iran, Malaysia, Pakistan, Arab Saudi, Sudan, Turki dan Emiriah Arab Bersatu. Kontrak Perkongsian Untung Rugi (PLS) dan keuntungan telah dikaji sebagai pengantara untuk menjelaskan proses melalui hubungan antara risiko kecairan dan kecekapan kos yang terjejas. Kajian ini menggunakan data panel bank yang beroperasi dalam persekitaran peraturan perbankan dwi dan perbankan Islam sepenuhnya. Kaedah Momen umum digunakan ke atas 85 buah bank Islam bagi tempoh 2005 hingga 2016. Keputusan menunjukkan bahawa nisbah kecekapan kos dan keuntungan, Nisbah Kecukupan Modal dan PLS berkait rapat dengan risiko kecairan. Begitu juga Keluaran Dalam Negera Kasar, Bekalan Wang dan inflasi mempunyai pengaruh yang signifikan terhadap risiko kecairan. Kajian turut menekankan bahawa keuntungan boleh menjadi pengantara tetapi kontrak PLS tidak mengantarakan hubungan antara risiko kecairan dan kecekapan kos. Implikasi keputusan ini adalah pengurusan bank, pemerintah dan pengawal selia bank Islam perlu menguruskan faktor-faktor penting yang mempengaruhi risiko kecairan dengan berkesan kerana hal ini mempunyai kesan langsung ke atas kecekapan kos dan keuntungan bank. Kajian ini menyumbang kepada penemuan baharu dari segi mengesahkan keengganan pihak bank untuk menggunakan kontrak PLS kerana kontrak ini meningkatkan risiko kecairan. Oleh itu, disyorkan agar pengamal dan pembuat dasar mengkaji dengan teliti bahawa kontrak PLS perlu disokong oleh modal jangka panjang untuk mengurangkan risiko kecairan. Hal ini akan memastikan keuntungan lebih besar bagi bank-bank Islam dalam persekitaran dwi perbankan.

**Kata kunci:** Risiko Kecairan, Keberuntungan, Kecekapan Kos, Bank Islam.



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## LIST OF ABBREVIATIONS

AAOIFI	Accounting and Auditing Organization for Islamic Financial Institutions
AE	Allocative Efficiency
ALM	Asset and Liability Management
BIMB	Bank Islam Malaysia Berhad
BIS	Bank for International Settlement
BK	Baron and Kenny
BLUE	Best Linear Unbiased Estimator
CAGR	Compounded Annual Growth Rate
CAR	Capital Adequacy Ratio
CDs	Certificates of Deposits
CFP	Contingency Funding Plan
CIR	Cost-to-Income Ratio
CMT	Commodity <i>Murabahah</i> Transactions
COMCEC	Committee for Economic and Commercial Cooperation of the Organization of Islamic Cooperation
DEA	Data Envelopment Analysis
DR	Deployment Ratio
FE	Fixed Effect
GCC	Gulf Cooperation Council
GDP	Gross Domestic Products
GFC	Global Financial Crisis

GLS	Generalized Least Square
GMM	Generalized Methods of Moments
GNI	Gross National Income
HQLA	High-Quality Liquid Assets
IB	Islamic Banking
IBIS	Islamic Banks Information System
IDB	Islamic Development Bank
IFSB	International Financial Service Board
IIFI's	International Islamic Financial Institutions
IIFM	International Islamic Financial Markets
IILM	International Islamic Liquidity Management Corporation.
IMF	Islamic Mode of Finance
INF	Inflation
IRTI	Islamic Research and Training Institute
ISO	International Standard Organization
LATA	Liquid Assets to Total Assets
LCR	Liquidity Coverage Ratio
LG	Liquidity Gaps
LQ	Liquidity Risk
MDIC	Malaysian Deposit Insurance Corporation
MENA	Middle East and North Africa
MS	Money Supply
NDD	Non-Deposit Dependence
NIM	Net Interest Margin

NPL	Non-Performing Loans
NPR	Net Profit Ratio
NSFR	Net Stable Funding Ratio
OIC	Organization for Islamic Cooperation
OPR	Operating Profit Ratio
PBTZ	Profit Before Tax and Zakat
PLS	Profit and Loss Sharing
PSIA	Profit Sharing Investment Accounts
PTE	Pure Technical Efficiency
RBC	Risk Bearing Capacity
RE	Random Effect
REG	Regulation
RLA	Risky Liquidity Assets
ROA	Return on Assets
ROE	Return on Equity
SIFIs	Systematically Important Financial Institutions
SLOLR	Shari'ah-compliant Lender of Last Resort
SRR	Statutory Reserve Requirement
SUR	Seemingly Unrelated Regression
TA	Total Assets
TBTF	Too Big To Fail
TCF	Total Customers' Funds
TE	Technical Efficiency
TI	Total Investment

TMA	<i>Tahawwut</i> (hedging) Master Agreement
TRA	Tobit Regression Analysis
UAE	United Arab Emirate
UK	United Kingdom
US	United States
UUM	Universiti Utara Malaysia
VIF	Variance-Inflation Factor
WDI	World Development Indicator



# CHAPTER ONE

## INTRODUCTION

### 1.1 Background of Study

Banking institution play a crucial financial intermediation role in the economic system of any country. Thus, banks have responsibility of providing fundamental services that include, but not limited to, acceptance and collection, as well as safe keeping of customers' funds, which the banks usually transferred or exchanged for financial or economic benefits of the customers on their instruction (Askari, Iqbal, Krichene & Mirakhor, 2012). The bank's services facilitate economic activities as well as promote greater efficiency being intermediaries in meeting the investment and liquidity needs of the economic agents in the financial system

The Islamic banking evolution came into being prior to the independence of several Islamic countries from their political colonialists in the 1950s (Belouafi, 1993). Islamic banks started in different countries like Egypt, United Arab Emirate (UAE), Sudan, and Pakistan in 1970s but took international coverage with the establishment of Islamic Development Bank (IDB) in Saudi Arabia in 1975 after the ministerial meeting of the Organization for Islamic Cooperation (OIC)

Globally, Islamic banking has become a credible and viable arrangement in the financial system. A rapid growth of Islamic banking has facilitated the establishment and operation of not less than 435 banking institutions that operate within some 75 countries in the globe and such institutions operate in foremost financial hubs like the United Kingdom (UK),

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*Appendix 1: List of Sampled Islamic Banks.*

COUNTRY	ISLAMIC BANKS
Bahrain	ABC Islamic Bank (E.C.)
Bahrain	Al Baraka Islamic Bank B.S.C. (E.C.)
Bahrain	Bahrain Islamic Bank B.S.C. Al -Salam Bank Arcapita Bank B.S.C. Bank Alkhair Capinnova Investment Bank Capinvest B.S.C. Citi Islamic Investment Bank (E.C.) Elaf Bank First Energy Bank B.S.C. First Investment Bank Global Banking Corporation B.S.C Gulf Finance House International Investment Bank Kuwait Finance House Bahrain Liquidity Management Centre B.S.C. Seera Investment Bank
Indonesia	Bank Muamalat Indonesia
Indonesia	Bank Syariah Mandiri
Iran	Bank Saderat Iran
Iran	Parsian Bank
Iran	Saman Bank Bank Keshavarzi Bank Maskan Iran Bank Mellat Bank Melli Bank of Industry and Mine Bank Refah Bank Sepah Bank Tejarat

	EN Bank Pasargad Bank
Kuwait	Boubyan Bank Gulf Investment House
Kuwait	Kuwait Finance House Kuwait International Bank Kuwait Turk Participation Bank Warba Bank
Malaysia	Bank Islam Malaysia Berhad
Malaysia	Bank Muamalat Bank Rakyat Affin Islamic Bank Berhad Al Rajhi Banking & Invst. Corp. Alkhair International Islamic Bank Alliance Islamic Bank AmIslamic Bank Berhad Asian Finance Bank CIMB Islamic Bank Berhad EONCAP Islamic Bank Berhad Kuwait Finance House Maybank Islamic Berhad OCBC Al-Amin Bank Berhad Standard Chartered Saadiq Berhad
Pakistan	Al Baraka Bank (Pakistan) Limited
Pakistan	Bank Islami Pakistan Limited Faysal Bank (Pakistan) Burj Bank Limited Dubai Islamic Bank Emirates Global Islamic Bank Limited
Saudi Arabia	Al Rajhi Bank

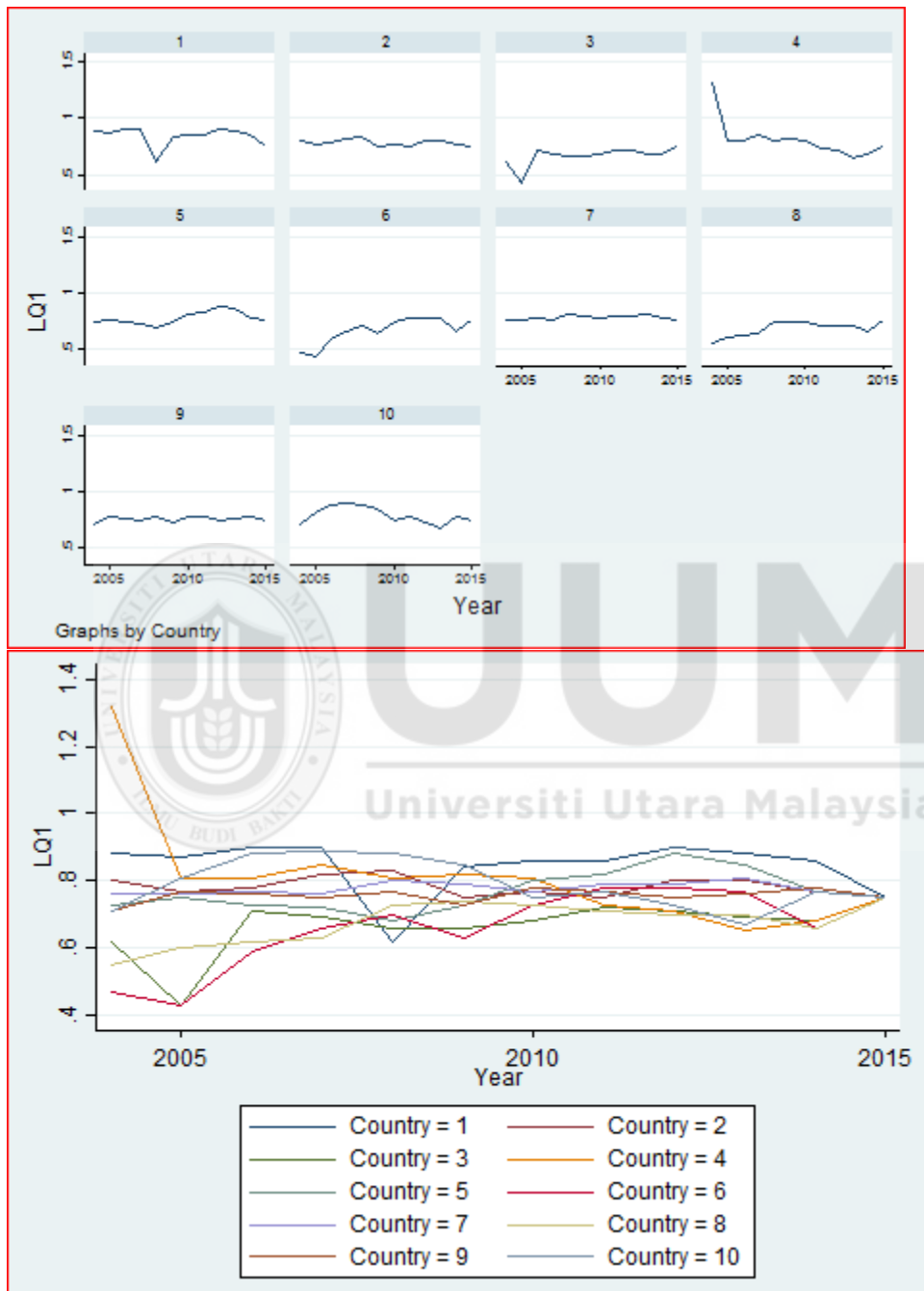


Saudi Arabia	Bank Aljazira
Sudan	Al Salam Bank (Sudan)
	Al Baraka Bank (Sudan)
Sudan	Al Shamal Islamic Bank
	Animal Resources Bank
	Bank of Khartoum
	Blue Nile Mashreq Bank
	Export Development Bank
	Financial Investment Bank
	Omdurman National Bank
	Saudi Sudanese Bank
	Savings and Social Development Bank
	Sudanese Islamic Bank
	Sudanese French Bank
Turkey	Albaraka Turk Participation Bank
	Bank Asya
	Kuwait Turk Participation Bank
UAE	Abu Dhabi Islamic Bank
	Dubai Islamic Bank
	Emirates Islamic Bank
	Sharjah Islamic Bank
	Ajman Bank
	Noor Islamic Bank





### Appendix 3: Liquidity Trend by Country





### Appendix 4: Panel Data Results

VARIABLES	(1) OLS	(2) TSLS	(3) RE	(4) FE	(5) XTGLS
DR	0.683*** (0.0194)	0.683*** (0.0194)	0.722*** (0.0186)	0.737*** (0.0204)	0.683*** (0.0191)
CIR	0.0186 (0.0159)	0.0186 (0.0159)	0.0533** (0.0218)	0.0735** (0.0307)	0.0186 (0.0157)
ROE	-0.0525*** (0.0134)	-0.0525*** (0.0134)	-0.0625*** (0.0123)	-0.0521*** (0.0133)	-0.0525*** (0.0132)
CAR	-0.143*** (0.0161)	-0.143*** (0.0161)	-0.139*** (0.0159)	-0.132*** (0.0181)	-0.143*** (0.0159)
SIZE	0.00197 (0.00328)	0.00197 (0.00328)	0.00726** (0.00285)	0.00971*** (0.00301)	0.00197 (0.00323)
PBTZ	0.00809 (0.00602)	0.00809 (0.00602)	0.0121** (0.00540)	0.0109* (0.00582)	0.00809 (0.00593)
PLS	0.0318** (0.0146)	0.0318** (0.0146)	0.0261** (0.0126)	0.0217* (0.0130)	0.0318** (0.0144)
REG	-0.0409*** (0.0113)	-0.0409*** (0.0113)	-0.0641*** (0.0190)	-0.0957 (0.0981)	-0.0409*** (0.0111)
GDP	-0.00760 (0.00960)	-0.00760 (0.00960)	-0.00114 (0.0148)	0.00766 (0.0260)	-0.00760 (0.00946)
INF	0.00154 (0.00924)	0.00154 (0.00924)	0.00939 (0.00713)	0.0107 (0.00724)	0.00154 (0.00910)
MS	0.0114 (0.0155)	0.0114 (0.0155)	-0.0192 (0.0243)	-0.0686* (0.0387)	0.0114 (0.0153)
L.LQ					
Constant	1.040*** (0.130)	1.040*** (0.130)	0.806*** (0.173)	0.590** (0.241)	1.040*** (0.129)
Observations	477	477	477	477	477
R-squared	0.828	0.828		0.875	
Number of Bank			79	79	79

## Appendix 5: GMM Results

xtdpdsys LQ DR CIR ROE CIR CAR DR SIZE PBTZ PLS REG GDP INF MS ,  
twostep

note: DR dropped from div() because of collinearity

note: CIR dropped from div() because of collinearity

note: DR dropped because of collinearity

note: CIR dropped because of collinearity

System dynamic panel-data estimation      Number of obs =  
416

Group variable: Bank                              Number of groups =    77

Time variable: Year

Obs per group:

min =    1

avg = 5.402597

max =    10

Number of instruments = 72                      Wald chi2(14) = 4.87e+06

Prob > chi2 = 0.0000

Two-step results

LQ	Coef.	Std. Err.	z	P>z	[95% Conf. Interval]	
LQ						
L1.	-.0166236	.000512	-32.47	0.000	-.0176271	-.0156202
CIR	.0301559	.0036647	8.23	0.000	.0229732	.0373385
ROE	-.0258883	.0021132	-12.25	0.000	-.0300301	-.0217464
CAR	-.1135833	.0034134	-33.28	0.000	-.1202734	-.1068931
DR	.7991132	.0020294	393.77	0.000	.7951357	.8030908
SIZE	.0176566	.0006495	27.19	0.000	.0163837	.0189296
PBTZ	.0081873	.0006601	12.40	0.000	.0068935	.0094811
PLS	.0079126	.0023208	3.41	0.001	.0033639	.0124613
REG	.11588	.0025504	45.44	0.000	.1108813	.1208786
GDP	.044941	.0045116	9.96	0.000	.0360985	.0537835
INF	.0039093	.0005831	6.70	0.000	.0027664	.0050523
MS	.017364	.0028722	6.05	0.000	.0117346	.0229934
_cons	.6084649	.0292398	20.81	0.000	.5511559	.6657739

Warning: gmm two-step standard errors are biased; robust standard

errors are recommended.  
Instruments for differenced equation  
GMM-type: L(2/.)LQ  
Standard: D.ROE D.CIR D.CAR D.DR D.SIZE D.PBTZ  
D.PLS D.REG D.LGDP D.INF D.MS  
Instruments for level equation  
GMM-type: LD.LQ  
Standard: \_cons

. estat sargan  
Sargan test of overidentifying restrictions  
H0: overidentifying restrictions are valid

chi2(57) = 59.77253  
Prob > chi2 = 0.3753

. estat abond

Arellano-Bond test for zero autocorrelation in first-differenced errors

```
+-----+  
Order  z   Prob > z  
-----+-----  
1  -1.5755  0.1151  
2   .55096  0.5817
```

+-----+  
H0: no autocorrelation

